

**SUSTAINABLE PRACTISES ON DIGITAL PAYMENT METHODS IN INDIA – AN  
ANALYTICAL REVIEW**

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**Abstract**

Digital payments play a vital role in all sectors in general and in the banking sector in particular. The concept first existed in 1996 when the Industrial Credit and Investment Corporation of India started offering online payment services to account holders to facilitate retail branches. Most businesses rely on retail sales, and an increasing proportion of the goods and services sold require the easy movement of funds from one account to another. After demonetization, there have been many changes in the banking sector, resulting in the growth of innovation methods and technology, which has increased competitiveness in the global banking sector. The increasing adoption of digital payment methods has brought about major changes in society and the economy. Digital payment methods fall into three categories: paperless, cashless, and faceless. The main objectives of digital payment instruments in India are: This influences a growing number of digital payment applications, including unstructured complementary service data, integrated payment interfaces, mobile wallets, bank credit cards, POS, mobile banking, internet banking, NEFT, RTGS, and micro-ATMs. The specific objectives of the study are: i) to examine the various orderings of digital payment methods in India. ii) to analysis of trends and growth of digital payment methods in India. This study is based on the nature of the secondary data. The required data has been collected from various sources such as Ministry of Finance, Government of India, Reserve Bank of India, National Payments Corporation of India, and NITI-Aayog. Research to identify sustainable practices in digital payment methods has gradually increased the transparency of money transfers from one place to another. At the same time, account holders should be aware of the awareness and rules regarding frequent incoming digital payment inquiries and unknown calls from others and spam numbers, any banks don't ask from account holders' details. The central bank and government should be taken strict rules and regulations implemented to protection of the sustainable practices on digital payment methods in India.

**Keywords:** Digital payment methods, banking sector, internet banking, mobile banking and transparency.

**Introduction**

Digital payments play a vital role in all sectors in general and in the banking sector in particular. The concept first existed in 1996 when the Industrial Credit and Investment Corporation of India started offering online payment services to account holders to facilitate retail branches. Most businesses rely on retail sales, and an increasing proportion of the goods and services sold require the easy movement of funds from one account to another. After

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demonetization, there have been many changes in the banking sector, resulting in the growth of innovation methods and technology, which has increased competitiveness in the global banking sector. The increasing adoption of digital payment methods has brought about major changes in society and the economy. Digital payment methods fall into three categories: paperless, cashless, and faceless. The above methods have been continuously growing for the developing nations like India has encouraged digital transactions such as quick response code, account number, mobile number and self-transfer from the same account services have been increasing the post-demonetization period. There is lot of changes from physical methods to cashless transactions have been growing and speedy of the digital payments in India.

### **Research Problem**

Digital payment methods have been increasing in recent years in India. Since the most of business activities have been depending upon and transfer from sender to receiver through the digital payment's methods like real time gross settlement, national electronic fund transfer is an inter-bank or inter branch online within the India. According to National Payment Corporation of India established and came has been functioning speed up of the digital payments like payment transfer of money, phonepe, g-pay, e-wallet, quick response code, aadhar payment system etc. The digital payment methods boom of the business activities with wholesale and retail business have believe and trust of transaction has allowed in run business efficiently. Even though digital payment has good and authentic method verification such single step and second step verification of the cash transfer to others. But the digital payment issues have continuously arisen and face of the account holders like bank manger call ask account details, unknown message received, weblink, fake digital offers, scratch card offers, online fraud, less digital literacy of the people.

### **Review of Literature**

Meghana and Tripathi (2018) studied the digital payment system for economic sustainability with special reference to Narmada fertilizers and chemicals in India. The study found that cashless transactions accounted for more than 80 percent of transactions. GNFC was declared the first 100 percent cashless community in India. Farmers benefited from various discounts on cashless transactions. GNFC gave farmers and retailers a discount of 15% and 10% respectively. Retailers are awarded for most of the digital transactions. From this, we can conclude that farmers had a hedonistic motivation that led them to buy DPS. The cashless initiatives led to socio-economic development and sustainability. The high impact results were as follows. The study concluded that a new era and the cashless initiatives, if implemented with a strategic approach, can lead to far-reaching positive changes in society and the economy at large, as all the factors required for the adoption and utilization of digital payment technology can lead to leading to economic sustainability and social transformation.

Angamuthu (2020) analysis the growth of digital payments in India. The study found that the growth of digital payment with respect to its volume of actual volume 24.11 percent and actual value 15.84 during 2019-2021 in India. In India, the government's focus on reducing cash in the economy has resulted in a robust payment system with ensures safety and efficiency. It has led to phenomenal growth, in particular in IMPS, M-Wallet and PPI cards during the study period in terms of both volume and value measures. These mediums have proved to be game changes in digital payments, online payment platforms and fund transfers. With digital payment transactions being inexpensive and convenient, economic activity is quickly shifting to cash less economic society. The study concluded that the government should take decision

and initiatives are helping enhance the global digital payments space and the emphasis on moving towards a digital payment is driving favourable regulations.

Bhavsar and Samanta (2021) observed the sustainability of digital payment proofs from India. This study found that the relationship between digital payments and sustainability using an autoregressive distributed lag model (ARDL) performs a co-integration limit test along with a dynamic least squares method. As a result, while national income economic shocks such as demonetization and pandemics make the sustainability of digital payment transactions significantly positive in terms of both value and volume, mobile payments are a substitute, so digital payments were shown to have a negative impact on unexpectedly, financial inclusion, represented by the increase in bank accounts, does not play a role in the sustainability of digital payments. This study suggests that the availability of technology does not make individuals more comfortable with it, nor is technology a substitute for financial inclusion. Both governments and central banks need to work tirelessly to make digital payments a sacred experience.

Venkatesan and Samitha (2021) analyse the key factors contributing to sustainability of digital payment banks in India and collected data from 200 respondents. The study found that the 86 percent of the respondent agreed that payment bank services enhance their living and working performance and 97 percent of them feel that it is less times consuming and they get faster services. Remaining 88 percent of them feel that they can manage their accounts efficiently using payment bank services and 89 percent of the respondents were satisfied with the information provided by payment banks. The study concluded that the payment banks to digitalize the world of payment system and to disrupt the field of conventional banking if offered a small bank license.

Sharma and Agarwal (2022) examined the role of sustainable finance practices and their impact on digital banking services in India. The study found that the frequency of internet use for various digital banking services provides an opportunity to build the banking industry have been provide with various online payment services and was conducted on 325 respondents. The study suggests that the three is gradual increase in the adoption of internet banking at that same time major barriers in adoption are a threat of security privacy and trust of digital payment method.

Pandey et al (2021) studied the growth and future of the Indian digital payments industry. They found that people of all ages made the most of digital industries during the pandemic era, as most of the population was stuck at home and banks were on standby. Over 40% of the total population relied on BHIM UPI, Google Pay and Phone Pe apps adopted by Indian consumers. The growth trend from the era of currency closure to the present has been the growth of the digital industry. The study concluded that the shift towards cashless or digital industries in India has seen positive changes from the pandemic period to the present.

Sarory et al. (2023) analysis and dynamic panel data methods, we find that the adoption of digital payment technologies by Indian banks has helped improve their cost efficiency. The study concludes that the efficiency gains are not directly due to a reduction in inputs used in intermediation, but due to cheaper availability of these inputs when banks go digital. These gains may result from integration into the overall digital payments ecosystem, as opposed to

piecemeal adoption of the technology. The study concludes that both the cost and technical efficiency gains are permanent. Banks' relative share of assets in the industry, non-performing assets, cost of deposits and returns on advances and equity are other important variables that influence cost efficiency.

### **Research Gap**

Digital means of payment are the new buzzword in the banking sector. It is a rapid development of all sectors in general and the banking sector in particular. Digital banking has grown in recent times, all retail shops, wholesale shops, shopping mall, motel, daily vendors, street vendors have seen access through sound box from buyer to seller transfer or not is one of the significant sustainable practises of digital payment system to enrich economic development in India. At the same time, there are many problems faced by people with low digital literacy and unaware of its use such as cyber frauds, unknown bank calls and asking for bank details of an unknown person. However, the present study aims to identify the gap between sustainable practises and digital payment systems to enable the development and realisation of a fully digital payment method in India. Most of the studies have not identify of the research gap but the present to focussed of the study.

### **Material and Methods**

The specific objectives of the study are: i) to examine the various orderings of digital payment methods in India. ii) to analysis of trends and growth of digital payment methods in India. This study is based on the nature of secondary data. The required data has been collected from various sources such as Ministry of Finance, Government of India, Reserve Bank of India, National Payments Corporation of India, and NITI-Aayog. Research to identify sustainable practices in digital payment methods has gradually increased the transparency of money transfers from one place to another.

### **Historical Background of the Study**

India had an open economic system since 1991 to accelerate all economic activities in general and the banking sector in particular. Thereafter, banking operations gradually changed so that physical records were replaced by computer records, cheque books and complete computerisation of all banking functions, ushering in the economic reform period. Despite the fact that the banking sector is an important financial sector, maintaining a good resource economy, such as a stable cash reserve ratio, a legally prescribed liquidity ratio and controlling inflation is the main function of the banking sector. Recently, the banking sector has been upgraded or digital methods have been introduced, such as processing transactions through electronic methods at any place and any time. This technique has saved time, easy, fast, accuracy and clear to update the message to the bank and the beneficiaries have been enjoying from the digital banking methods. In 2004 with the establishment of National Financial Shift, Reserve Bank of India became a statutory provision in Payment and Settlement Act of 2007 with the help of them started in National Payment Corporation of India was announced the body for laying, which operates retail payments and settlement systems in India. The NPCI became the responsibility of all public, private and foreign banks to enable a good digital platform digital banking system in India. In 2009 on wards was one of the largest authentic digital platforms in Aadhar with 12 digital number has useful for all citizens. It is known your

digital payment transaction and known details and access fast payment was born from the electronic know your customer and biometric verification in banking features. Nowadays, digital payment transaction with the help of digital payment tools like Immediate Payment System, Real Time Transfer of Funds, Aadhar Payment, National Automated Clearing House, Centralised Electronic Clearing System, Unified Payment Interface, National Financial Switch RuPay, through mobile phone use application Paytm, Phone Pe and Google Pay application have been increased digital payment system during post demonetisation in India.

### **Result and Discussion**

Sustainable digital payments play an important role in economic development and the United Nations Sustainable Development Goals. Digital payments are part of the 2030 Sustainable Development Goals and have drawn the attention of the global strategy to digital financial transactions. This concept is widespread around the world and is being accepted by technology. Currently, 80 per cent of adults have access to digital transactions and use it for their regular business or life needs, which is essential for the digital economy in India. India is a member of the United Nations Environment Programme (UNEP) and has been driving environmental sustainability and green banking to promote the digital payment system.

### **Sustainable Practices Digital Payment Methods in India**

Digital India has set itself the have three less goal of achieving like faceless, paperless, cashless status. The Indian government is prioritising the promotion of digital money and is aiming to bring every section of the country under the umbrella of official digital payment services. The daydream is to provide a seamless monetary transaction experience to all citizens of India that is convenient, easy, affordable, fast and secure through financial technologies, in line with the commitment to protect the environment. Digital methods refer to the delivery of financial services through digital infrastructures such as mobile phones and the internet, with minimal reliance on cash and traditional bank branches. This transaction method uses less cash and traditional bank branches, and instead uses computers, mobile phones or cards that can be used via point-of-sale devices to provide individuals and businesses with a digitised native financial experience. The following sustainable practices of digital payment methods are:

#### **1. National Electronic Funds Transfer (NEFT)**

National Electronic Funds Transfer (NEFT) is a nationwide payment system for peer-to-peer money transfers. According to this system, a person or business can make an electronic money transfer from any bank account to any person, institution or business that has an account at another bank in the country participating in the system.

#### **2. Real Time Gross Settlement (RTGS)**

RTGS system is primarily used for big transactions. The minimum number of amounts of money by RTGS is 200,000. RTGS is a payment system used for instant money transfer.

#### **3. Instant Payment Service (IMPS)**

IMPS is an instant, 24x7, inter-bank electronic funds transfer service offered by banks across India via mobile, online and ATM, which is not only secure but also smart and fast. Some banks charge a transfer fee for IMPS transactions, depending on the account type and transfer speed.

#### **4. Unified Payments Interface (UPI)**

UPI is a system that permits multiple bank accounts into one mobile operation, incorporating several banking features & trafficker payments into one single hub. Each client

will be having a unique UPI ID associated to their separate bank. The deals are grounded on this unique UPI ID.

### 5. Aadhar Payment Bridge System

It is a special payment system run by the National Payments Corporation of India (NPCI) that electronically transfers government benefits and subsidies into the Aadhaar Enabled Bank Accounts (AEBA) of the intended recipients using the Aadhaar number as a central key.

### 6. BHIM Pay

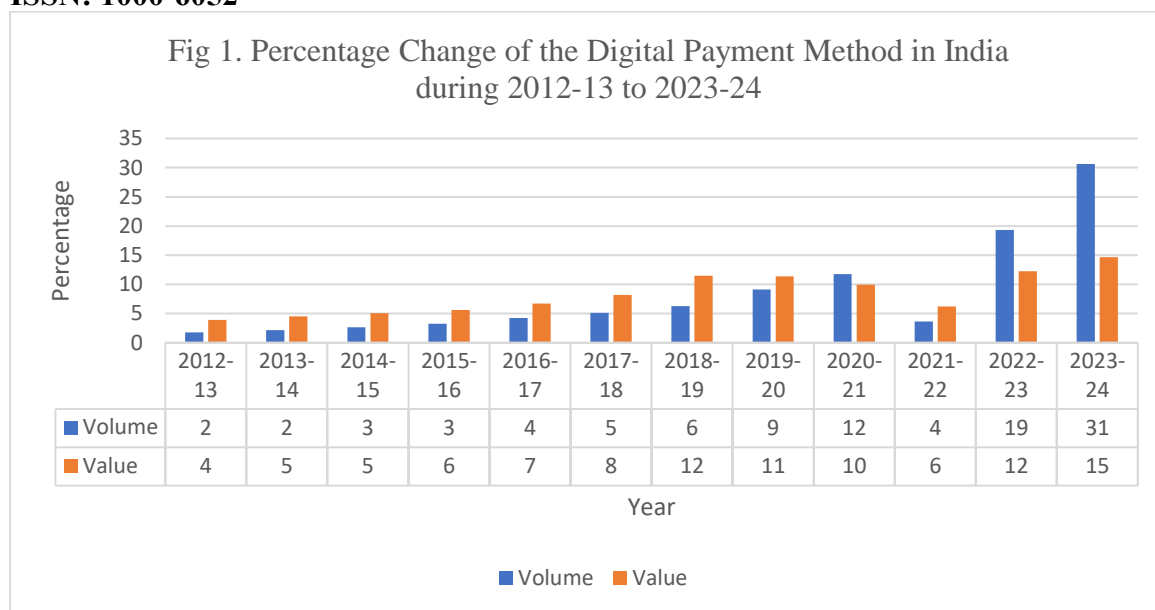
BHIM (Bharat Interface for Money) is an Indian mobile payment app industrialized by the National Payments Corporation of India (NPCI), founded on the Unified Payments Interface (UPI). Launched on 30 December 2016. It was intended to facilitate e-payments directly through banks and encourage cashless transactions. BHIM allows users to send or receive money to a UPI payment address or a non-UPI-based account (by scanning the QR code along with the account number and IFS code or MMID code). Unlike mobile wallets that hold money (Paytm, Mobi Kwik, M-Pesa, Airtel Money, etc. BHIM now also allows users to send or receive digital payments via Aadhaar authentication.

**Table 1:** Sustainable Growth of Digital Payments Methods in India

Year	Volume of Transactions (Laks)	Value Transactions (Rs in Crores)
2012-13	65812	55351198
2013-14	80353	64061822
2014-15	98695	72400501
2015-16	120593	80226850
2016-17	157412	95912592
2017-18	190858	116468676
2018-19	232602	163713425
2019-20	340155	161968681
2020-21	437068	141458488
2021-22	135744	88189605
2022-23	719768	174401233
2023-24	1139382	208684872
Mean	309870	118569829
SD	321864	50175505
CV	104	42

**Source:** Reserve Bank of India

The above table shows the sustained growth of digital payment methods in India from 2012-13 to 2023-24. The initial period was five digital volumes in Rs.65812 and Rs 1139382 respectively due to huge change in volume has continuously increased digital payment especially after demonetisation period 2016-17 volume has been increasing due to promotion of cashless economy activities at that time. The mean value of the volume 309870 and mean of the value 118569829 during the period respectively and standard deviation of volume 321864 and value 50175505 the above said period. The coefficient volume is 104 and value 42 there is significant changes of the overall the period digital transactions in India.



The above fig 1 shows that the sustainable growth digital payment method in India during 2012-23. From beginning volume and value of the digital transactions was marginal contribution after that especially in 2016 onwards there is both terms like volume and value have been tremendous growth of the digital payment method the above said period. It is the part of the payment in future generation for the all the transactions through digital mode will be accepted in future in India.

The present study has conducted with the selected six digital payments such as RTGS, APBS, IMPS NEFT, UPI and BHIM Pay, which is highly rank in digital payment transactions during year from 2017 to 2022. The mean value of the all the digital application have been increasing due to quick access and safe mode of transaction to verifying within minute transfer the money from one to others.

**Table 2** Sustainable Growth of the Digital Payment Methods in India during 2017-18 to 2022-23

Year	Volume (in Lakh)						Mean Value
	RTGS	APBS	IMPS	NEFT	UPI	BHIM Pay	
2017-18	1244	12980	10098	19464	9152	20	7854
2018-19	1366	15032	17529	23189	53915	68	16160
2019-20	1507	16805	25792	27455	125186	91	28421
2020-21	1592	14373	32783	30928	223307	161	43595
2021-22	2078	12573	46625	40407	459561	228	80499
2022-23	2426	17898	56533	52847	837144	214	138440
Mean	1702	14943	31560	32381	284710	130	52492

**Source:** Reserve Bank of India.

The above said table digital payment methods have compile and used for the One-Way ANOVA and has test by the following hypothesis (H<sub>0</sub>). The result is shown in the Table 3.

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3.66E+11	5	7.33E+10	4.428382	0.003867	2.533555
Within Groups	4.96E+11	30	1.65E+10			
Total	8.63E+11	35				

- ❖  $H_{01}$ : There is no significant difference in volume of transactions between electronic devices, such RTGS, APBS, IMPS, NEFT UPI and BHIM Pay.
- ❖ Inference:  $F_{cal} > F_{crit}$  therefore,  $H_{01}$  was rejected and it was concluded that there is a significant difference in terms of transaction volume between RTGS, APBS, IMPS, NEFT UPI and BHIM Pay.

**Table 4** Sustainable Growth of the Digital Payment Methods in India during 2017-18 to 2022-23

Year	Value (in Crore)						
	RTGS	APBS	IMPS	NEFT	UPI	BHIM Pay	Mean Value
2017-18	116712478	55949	892498	17222852	1098.32	78	19269567
2018-19	135688187	86734	1590257	22793608	876971	815	23005513
2019-20	131156475	99448	2337541	22945580	2131730	1303	22667728
2020-21	1056	1.11	29.41	251.31	41.04	0.03	486
2021-22	1286	1.33	41.71	287.25	84.06	0.06	532
2022-23	1499	2.48	55.85	337.2	139.15	0.07	579
Mean	63926830	40356	803404	10493819	501677	366	10824067

**Source:** Reserve Bank of India

Table 4 shows the growth and market volume of digital payments from 2017 to 2022. Digital payment options include RTGS, IMPS, APBS, NEFT, UPI and BHIM Pay. While digital payments such as RTGS, NEFT and UPI have seen moderate growth due to quick payments and withdrawals from business applications, other applications have seen negative growth over time. The above-mentioned applications have neither seen a decline nor negative growth in the future of digital payments in India. The Reserve Bank of India's 'Digital Payments Vision 2025' is now encouraging the country to adopt digital payment methods such as cashless economy. The above said digital payment methods have compiled and using One-way ANOVA and has testing by the following hypothesis ( $H_{02}$ ). The result has shown in the below table 4.

Table 5 ANOVA Results for the Value of Transactions in Digital Payment Methods						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1.94E+16	5	3.89E+15	4.592324	0.003144	2.533555
Within Groups	2.54E+16	30	8.47E+14			
Total	4.49E+16	35				

- ❖  $H_{02}$ : There is no significant difference in value of transactions between electronic devices, such RTGS, APBS, IMPS, NEFT UPI and BHIM Pay.
- ❖ Inference:  $F_{cal} > F_{crit}$  therefore,  $H_{02}$  was rejected and it was concluded that there is a significant difference in terms of transaction volume between RTGS, APBS, IMPS, NEFT UPI and BHIM Pay.

**Conclusion**

The digital payment system is part of the banking system. In recent times, digital payment methods have been demanded by both regular and non-regular banks. The main role of banks in the Indian banking sector is to provide quality services to depositors anytime, anywhere, both physically and digitally. Therefore, economic reform and demonetisation has given a boost to the banking sector which has enabled innovation and technological practises in the banking sector that promote sustainable digital payment system practises. The United Nations is the main target of Sustainable Development Goals SDGs in 2030 and this concept is universally acceptable to all nations. India is the host country of G20 and the development of the entire sector is general, especially the banking sector has promoted the digital payment practises towards sustainable growth or green colour activities growth in the future of the banking sector. The banking sector has undergone a major transformation in recent times, promoting digital payment methods to drive the cashless economy. The Reserve Bank of India should take steps to put in place stringent rules and regulations to protect the banking sector that promote sustainable practises for digital payment methods and economic development in India.

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